DeMaria, Eva

From: SUTTER Jennifer <SUTTER.Jennifer@deq.state.or.us>
Sent: Thursday, July 23, 2015 3:34 PM
To: DeMaria, Eva
Cc: MCCLINCY Matt; Sheldrake, Sean; Michael Allen (allenmc@cdmsmith.com); SUTTER Jennifer
Subject: RE: Evraz Riverbank Import - Chemical testing results
Attachments: DRAFT 07 22 15 1709---CWE---Storedahl-Evraz.pdf

Eva
Thanks for your quick review of the Evraz import material evaluation. As we discussed in our phone conversation yesterday, I have provided responses to the concerns you raised below. We discussed most of these but there have been some new developments. Please let me know if you have any questions or continue to have concerns with this approach.

1. EPA had several comments related to the representativeness of the analytical results provided and consistency with the import fill protocols approved in the Remedial Design. DEQ had similar concerns and discussed the following approach with Evraz to address these issues:

    a) Beach backfill – approximately 5,700 cubic yards of material will be required. The import fill sampling protocol specifies one composite sample per 5,000 cubic yards. Evraz is planning to complete analysis of the composite sample currently archived in the lab (collected for the As analysis) for all of the other required constituents (other metals, SVOCs/PAHs, PCBs, pesticides and dioxins/furans). The sample in the lab is a 15-point composite sample collected from 2 to 10 feet above grade and 2 to 8 inches below the surface of the import pile. This result along with the results for the previously analyzed grab sample are considered adequate to meet the sampling frequency.

    b) Bank backfill – approximately 1,500 cubic yards of 1.5 inch minus material is required for creating the bed between the geotextile material and the 3 feet of rip rap that will be placed on the bank. The initial copper result (98.2 mg/kg) exceeded the fill criteria but was below EPA PRGs for sediment. Three additional 5-point composite samples were analyzed for copper and the draft results are 100, 115 and 90.4 mg/kg (laboratory report is attached). These results are consistent with the grab sample result, and the material is considered acceptable. The other factor considered in accepting the grab sample results for this material is the nature of the source. The source is monolithic basalt from Livingston mountain outside of Vancouver. It is blasted to car-size chunks, reduced to smaller sizes using hydraulic breakers, and then sent through a crusher to achieve the required grain size. This processing thoroughly mixes the material and so the grab sample is essentially a composite sample.

    c) Berm backfill – approximately 3,000 cubic yards of material are required for the berm backfill that will be used within soil wraps and subgrade on the reconstructed berm. One foot of topsoil will be placed over this material and it will be planted. If the originally identified berm backfill material is used, a composite sample will be collected of this material and analyzed for all required constituents. The results for the initial grab sample indicated exceedance of import fill criteria for 2 dioxin congeners. The additional analysis of a composite sample will further inform this result; however, I have discussed this detection with DEQ toxicologists and, based on a relatively low TEQ (1.62), they do not expect this to be a risk issue particularly considering that the material will be covered by 1 foot of soil and vegetated. I was informed today that the supplier has identified an alternate potential source for this material. Evraz is planning to collect one five-point composite of this newly identified material and analyze for all constituents (metals, SVOCs/PAHs, PCBs, pesticides and dioxins/furans). Results will be provided to DEQ before a decision is made on whether to use this new material, the originally identified material, or possible the 1.5 inch minus material that is being used for bank backfill.

2. EPA expressed concern with the proposal to use the 1.5 inch minus material in the berm in place of the material specified in the remedial design. Sheet D-85803 from the final design report specifies that berm backfill material reflect the following characteristics:

Sieve size (inches)	% passing
4	99-100
2	70-100
No. 4	50-80
No. 40	30 Max
No. 200	7.0 Max
Sand equivalent	50 Min

Based on these characteristics, the 1.5 inch minus bank backfill material should meet this criteria with the exception of the minimum sand component and is expected to meet stability requirements. As stated above, Evraz has identified a new source of material meeting these specifications and will be collecting one five-point composite of the newly-sourced material for analysis of all constituents. In the event the 1.5 inch minus material is preferred over the new or original berm source material, then Evraz will complete an engineering and landscape evaluation to assess whether the 1.5 inch minus material would meet the stability and vegetation support requirements in the berm. This evaluation would be documented as a basis for any decisions to deviate from the material characteristics prescribed in the remedial design. Evraz will not use the substitute material if it does not meet those requirements.

3. The ND values for dioxin in the summary table prepare by EOS' consultant reflected ND at the EDL as documented in the lab sheets that were also included in the submittal. Future tabulations will clarify this in a footnote. Also, the dioxin TEQs for mammals, fish, and birds will be included in the summary tables for dioxin results.

I believe this addresses the concerns EPA presented in the comments on the import fill evaluation. Please call me if I have missed something or if you have questions or concerns about the proposed approach.

Thanks again for your input.

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From: DeMaria, Eva [mailto:DeMaria.Eva@epa.gov]
Sent: Wednesday, July 22, 2015 11:19 AM
To: SUTTER Jennifer
Cc: MCCLINCY Matt; Sheldrake, Sean; Michael Allen (allenmc@cdmsmith.com)
Subject: RE: Evraz Riverbank Import - Chemical testing results

Jennifer-

I've attached EPA's draft comments on the initial testing of potential import material for the Evraz riverbank restoration project. Please call or email if you have questions. Thanks.

Eva

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From: Linda Baker [mailto:lbaker@integral-corp.com]
Sent: Monday, July 20, 2015 4:47 PM
To: SUTTER Jennifer
Cc: DeMaria, Eva; Sheldrake, Sean; Drew Gilpin (Drew.Gilpin@evrazna.com); Debbie Deetz Silva (Debbie.Deetz.Silva@evrazna.com); Mike Byers (mike.byers@creteconsulting.com); Craig Heimbucher; Jane Sund
Subject: Evraz Riverbank Import - Chemical testing results

Jennifer – below and attached is the information on import material testing to date. I have copied Eva DeMaria and Sean Sheldrake for EPA source control, since EPA asked to see the import data in their comments on the design.

Import material testing is in process for the EVRAZ riverbank source control measure. The supplier (J L Storedahl & Sons) has provided data for three potential import materials as follows:

1. 1.5" minus crushed rock that is to be placed between the geofabric and the rock armor (LIVINGSTON G-121 ODOT 1½')
2. Beach backfill that is to be used as backfill in beach removals (DAYBREAK G-109 BEACH BACK; also BB-S Comp, BB-C Comp, BB-N Comp and BB-Total Comp)
3. Berm backfill that is to be used subgrade in berm removal areas, within soil wraps and located below 1-foot of topsoil (LIVINGSTON G-121 BERM BAC)

The attached files include a summary table of analytical results (excel file), and the analytical reports. The initial samples were grab samples. The beach backfill is from a gravel pit and the sample was from a pile that was excavated from the gravel pit and stockpiled. The excavating and moving around provides some degree of compositing and the arsenic results (with the exception of the anomalous result that could be a laboratory error) support the uniform nature of the material. The 1.5-inch minus is crushed rock from a basalt quarry and is expected to be uniform in concentration (quarry in one type of rock without significant variability in the rock type). While the original samples were not composites, they are considered representative as the original product is a uniform, mixed material.

Here is a summary of the results and current status:

1. 1.5" minus crushed rock (to be placed between geofabric and rock armor):
    a. Meets design import criteria except copper and, pending confirmation sampling, DEQ has indicated the copper concentrations is acceptable. The copper concentration was 98.2 mg/kg; the import criteria is the DEQ background value for the Portland Basin, 34 mg/kg.
    b. The 1.5" minus will be considered acceptable pending additional copper testing confirming the initial result (or showing lower concentrations). The supplier is retesting 3 composite samples for copper. We have discussed the 98.2 mg/kg copper result with DEQ and they have indicated that if the98.2 mg/kg result is confirmed by the subsequent testing they will consider the material acceptable. This concentration is:
        i. Below risk-based criteria being considered for Portland Harbor (JSCS= 149 mg/kg, EPA Draft PRG (June 2015): RAO 5- Direct contact ingestion=149 mg/kg; RAO9 Riverbank Soil and Sediment= 149 mg/kg)

ii. Below DEQ HH RBC Residential 3,100 mg/kg; and below most DEQ terrestrial Ecological Criteria. It exceeds the DEQ Level II Eco risk screening value for invertebrates (Oak Ridge number for earthworms) of 50 mg/kg by a factor of 2. Because of this material's lack of organics, limited placement between the geofabric and the rock armor, where volumes are limited and the exposure potential for earthworms is unlikely (3 feet below final grade except for the limited area under the dock where it will be 1.5 feet below grade).

2. Beach backfill (to backfill in beach removal areas)
    a. Meets design import criteria
    b. As indicated on the attached table, the original arsenic concentration was reported by the laboratory to be 59 mg/kg and has not been confirmed by additional testing. The import criteria for arsenic is the DEQ background for the Portland Basin, 8.8 mg/kg. The 59 mg/kg arsenic result was considered anomalous as this is native, unimpacted material and the laboratory was asked to run an additional aliquot from the same sample. The second aliquot result was 4.45 mg/kg. Based on this result, the supplier collect three 5-point composites to get a better handle on the arsenic concentrations (and they also analyzed a composite sample of the composites). The arsenic concentrations in the composite samples were 4.29, 4.43 and 4.46 mg/kg and the arsenic concentration in the composite of composites was 3.91 mg/kg. After discussions with DEQ and based on these results, arsenic concentrations meet the background-based criteria and the import material is considered acceptable.

3. Berm backfill (to be used subgrade in berm removal areas, within soil wraps and located below 1-foot of topsoil)
    a. Meets design import criteria except low level dioxins and furans (D/F) concentrations (2,3,7,8-Tetra CDD at 0.726 pg/g; 2,3,7,8-Tetra CDF at 6.81/7.2 pg/g).
    b. We are considering two options for the berm backfill as follows:
        i. Use of the Berm Backfill material as is, with an additional composite sample to confirm D/F concentrations. Per discussions with DEQ, the supplier may choose to run a 5-point composite for D/F. Should the results confirm these concentrations (or be lower than these concentrations), then this material will be considered acceptable for the berm backfill.
        ii. Using the 1.5"minus material in the berm in lieu of the original specified material provided the landscape designer finds it acceptable and copper concentrations are confirmed.
            1. Riverbank designers have determined that it is suitable from a geotechnical perspective: The original material specified for the berm backfill was a well-graded 4 inch minus aggregate. In general, the originally specified berm backfill and the 1.5" minus are both mixtures of sand and gravel. The berm backfill specification allows for a higher percentage of sand and it allows larger gravel when compared to the crushed rock. To dig into the details, the berm backfill specification has a relatively even distribution of gravel and sand size particles (it allows more sand than gravel) and allows up to 7% of silt size particles. The 1.5" minus crushed rock is gravel and sand size aggregate with more gravel than sand. The allowable maximum gravel size in the 1.5-inch minus is smaller than the berm backfill specification allows. The crushed rock specification requires between 25 and 40 percent sand with the rest being gravel smaller than 1.5 inches. Both materials will work from a strength perspective for embankment stability.
            2. It meets import criteria except copper which is undergoing additional testing and will likely be considered acceptable as it meets likely risk-based values for copper being considered for Portland Harbor and will be located beneath 1 foot of topsoil and within soil wraps and will comprise only a portion of the overall berm..
            3. We are verifying with the landscape designers to make sure that the crushed rock is compatible with the landscaping requirements for the berm.

We will keep you posted on:

- The results of additional copper testing of the 1.5” minus rock
- The input of the landscape designer with regard to suitability of the 1.5” minus rock for berm backfill
- The decision whether to test a composite sample of the berm backfill or use the 1.5” minus rock for the berm backfill.

Please let us know if you have any questions. Thanks

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